AMSAT News Service Weekly Bulletins
Issue: ANS-144
Date: 2015-05-24
Sources: amsat-ans-2015-ans-144-weekly-hyperkitty-97f1a6a119.txt

---

AMSAT NEWS SERVICE
ANS-144

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

In this edition:

* CAMSAT announces mid-July launch with six U/V transponders
* 2015 AMSAT-NA Board of Directors Nominations Notice
* AMSAT 2015 Field Day Announcement - June 27-28
* Beijing may launch amateur satellites in July
* Radio Amateur Sworn In as New NASA Deputy Administrator
* AMSAT News Lit up on the Web, Forums, and Social Media
* PSK31 and APRS CubeSat Status Update
* ARISS News
* Satellite Shorts From All Over

SB SAT @ AMSAT $ANS-144
ANS-144 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 144
>From AMSAT HQ KENSINGTON, MD.
May 24, 2015
To All RADIO AMATEURS
BID: $ANS-144

CAMSAT announces mid-July launch with six U/V transponders

Alan Kung, BA1DU (CAMSAT CEO) recently sent AMSAT-NA the following press release:

CAMSAT orchestrated CAS-3 amateur satellite system is now nearing completion, six Chinese amateur satellites will be launched in mid-July,it includes different weight category satellites, consists of a 20 kg, three 10 kg and two 1 kg satellites. All six satellites are equipped with substantially the same amateur radio payloads, a U/V mode linear transponder, a CW telemetry beacon and an AX.25 19.2k/9.6k baud GMSK telemetry downlink are attached in each of the six satellites, each set of amateur radio equipments has the same technical characteristics, but operates on different frequencies of 70cm band uplink and 2m band downlink.

During the years, CAMSAT works closely with DFH Satellite Co. Ltd to complete the project, which is Chinese government aerospace

contractor and provided most of the support for this project. All the satellites are currently conducting final testing and inspection, here are the technical details:

CAS-3A:

– Micro-satellite architecture
– Dimensions: 400Lx400Wx400H mm
– Mass: 20kg
– Stabilization: three-axis stabilization system with its +Y surface facing the earth
– Antenna: Deployable antenna, one 1/4? monopole VHF antenna with max.0dBi gain is located at +Z side and one 1/4? monopole UHF antenna with max.0dBi gain is located at –Z side, close to the each edge of satellite body
– Uplink: 70cm band
– Downlink: 2m band
– Amateur radio payloads:
Callsign: BJ1SB
CW Telemetry Beacon: 50mW, 22wpm
U/V Mode Linear Transponder: 100mW, 20kHz bandwidth, spectrum Inverting
AX.25 telemetry: 100mW, 19.2k/9.6k baud GMSK

CAS-3B, CAS-3C and CAS-3D:

– Micro-satellite architecture
– Dimensions: 250Lx250Wx250H mm
– Mass: 9kg
– Stabilization: three-axis stabilization system with its +Y surface facing the earth
– Antenna: Deployable antenna, one 1/4? monopole VHF antenna with max.0dBi gain is located at +Z side and one 1/4? monopole UHF antenna with max.0dBi gain is located at –Z side, close to the each edge of satellite body
– Uplink: 70cm band
– Downlink: 2m band
– Amateur radio payloads:
Callsign: BJ1SC (for CAS-3B), BJ1SD (for CAS-3C), BJ1SE (for CAS-3D
CW Telemetry Beacon: 50mW, 22wpm
U/V Mode Linear Transponder: 100mW, 20kHz bandwidth, spectrum Inverting AX.25 telemetry: 100mW, 19.2k/9.6k baud GMSK

CAS-3E and CAS-3F:

– Cube-satellite architecture
– Dimensions: 110Lx110Wx110H mm
– Mass: 1.5kg
– Stabilization: Spinning stabilization using permanent magnet torquer
– Antenna: Deployable antenna, one 1/4? monopole VHF antenna with max.0dBi gain is located at +Z side and one 1/4? monopole UHF antenna with max.0dBi gain is located at –Z side, close to the each edge of satellite body
– Uplink: 70cm band
– Downlink: 2m band
– Amateur radio payloads:
Callsign: BJ1SF (for CAS-3E), BJ1SG (for CAS-3F)
CW Telemetry Beacon: 50mW, 22wpm
U/V Mode Linear Transponder: 100mW, 20kHz bandwidth, spectrum Inverting
AX.25 telemetry: 100mW, 9.6k baud GMSK

This launch will use an brand new Chinese launch vehicle named as Long March – 6 (LM-6 or CZ-6) at Taiyuan Satellite Launch Center of

China, CAS-3A will operate at about 450 km height sun-synchronous orbit, the other satellites will operate at about 530 km height sun-synchronous orbit.

The launch will carry total of 20 satellites, there are other three satellites named as CAS-3G, CAS-3H and CAS-3I involved in amateur radio from other agencies of China will share the same launch, CAMSAT was assisting Chinese government administration to coordinate and allocate their frequencies, more details will be announced later.

[ANS thanks Alan Kung, BA1DU and CAMSAT for the above information]

2015 AMSAT-NA Board of Directors Nominations Notice

It is time to submit nominations for the upcoming AMSAT-NA Board of Directors election. Four director's terms expire this year: Barry Baines, WD4ASW, Alan Biddle, WA4SCA, Mark Hammond, N8MH, and Jerry Buxton, N0JY. In addition, up to two Alternates may be elected for one year terms.

A valid nomination requires either one Member Society or five current individual members in good standing to nominate an AMSAT-NA member for Director. Written nominations, consisting of the nominee's name and call, and the nominating individual's names, calls and individual signatures should be mailed to: AMSAT-NA, 10605 Concord St, #304 Kensington, MD 20895-2526.

In addition to traditional submissions of written nominations, which is the preferred method, the intent to nominate someone may be made by electronic means. These include e-mail, Fax, or electronic image of a petition. Electronic petitions should be sent to MARTHA(a)AMSAT.ORG or Faxed to (301)822-4371.

No matter what means is used, petitions MUST arrive no later than June 15th at the AMSAT-NA office. If the nomination is a traditional written nomination, no other action is required. If it is other than this, i.e. electronic, a verifying traditional written petition MUST be received at the AMSAT-NA office at the above address within 7 days following the close of nominations on June 15th.
ELECTRONIC SUBMISSIONS WITHOUT THIS SECOND, WRITTEN VERIFICATION ARE NOT VALID UNDER THE EXISTING AMSAT-NA BYLAWS.

Alan Biddle
WA4SCA
AMSAT-NA Corporate Secretary

[ANS thanks Alan Biddle, WA4SCA, AMSAT-NA Corporate Secretary for the above information]

AMSAT 2015 Field Day Announcement - June 27-28

It's that time of year again: Field Day! Each year the American Radio Relay League (ARRL) sponsors Field Day as a "picnic, a campout, practice for emergencies, an informal contest and, most of all, FUN!"

The event takes place during a 24-hour period on the fourth weekend of June. For 2015, the event takes place during a 27-hour period from 1800 UTC on Saturday June 27, through 2100 UTC on Sunday June 28, Those who set up prior to 1800 UTC on June 27 can operate only 24 hours.

The Radio Amateur Satellite Corporation (AMSAT) promotes its own version of Field Day for operation via the amateur satellites, held concurrently with the ARRL event.

If you are considering ONLY the FM voice satellite SO-50 for your AMSAT Field Day focus - don't - unless you are simply hoping to make one contact for the ARRL rules bonus points. The congestion on FM LEO satellites was so intense in prior years that we must continue to limit their use to one-QSO-per-FM-satellite. This includes the International Space Station. You will be allowed one QSO if the ISS is operating voice.

You will also be allowed one digital QSO with the ISS or any other digital, non-store-and-forward, packet satellite (if operational). Many good contacts can be made on the linear transponder satellites including AO-73, FO-29, and AO-7. During Field Day the transponders come alive like 20 meters on a weekend. The transponders on these satellites will support multiple simultaneous SSB or CW contacts.

The 2015 AMSAT Field Day event is open to all Amateur Radio operators. Amateurs are to use the exchange as specified in ARRL rules for Field Day. The AMSAT competition is to encourage the use of all amateur satellites, both analog and digital.

AMSAT Field Day information is also posted on the web at:
http://www.amsat.org/?page_id=216

[ANS thanks Bruce Paige, KK5DO, AMSAT Director of Contests and Awards, for the above information]

Beijing may launch amateur satellites in July

Mineo Wakita JE9PEL reports on his website that Beijing may launch satellites carrying amateur radio payloads in July 2015. It is understood the launch would be on a CZ-6 rocket from the Taiyuan Satellite Launch Center.

XW-2 (CAS-2) and LilacSat-2 will be carrying amateur radio payloads but at the time of writing it is not clear if Tiantuo-3 and ZDPS-2 may also have amateur radio payloads.

Additionally it is reported elsewhere there may be up to 20? CubeSats on the launch.

CAS-2A1 satellite: 270x270x250mm
2m CW telemetry beacon 100 mW
2m AX.25 digital telemetry beacon 500 mW
2m FM voice beacon 500 mW
U/V mode Linear transponder 50 kHz 500 mW
L/S mode Linear transponder 200 kHz 320 mW
U/V mode APRS repeater

CAS-2A2 satellite:

70cm CW telemetry beacon 100 mW
70cm AX.25 digital telemetry beacon 500 mW
13cm CW telemetry beacon 200 mW
3cm CW telemetry beacon 200 mW
V/U mode Linear transponder 500 mW

LilacSat-2 – Harbin Institute of Technology
Approx. 11 kg 20x20x20 cm
Uplink: 145.825, 145.875 MHz
Downlink: 437.200 MHz beacon 437.225 MHz FM/APRS

Tiantuo-3 (TT-3) – Small satellite from China's National University of Defense Technology

ZDPS-2 – Nano-satellite mission of the Microsat Research Center Zhejiang University

Source Mineo Wakita JE9PEL
http://www.ne.jp/asahi/hamradio/je9pel/lilacsat.htm

[ANS thanks Mineo Wakita JE9PEL and AMSAT-UK for the above information]

Radio Amateur Sworn In as New NASA Deputy Administrator

Massachusetts Institute of Technology (MIT) professor Dava Newman, KB1HIK, has been sworn in as the deputy administrator of NASA. President Barack Obama appointed Newman last October, and the US Senate confirmed her appointment on April 27. The swearing-in took place on May 15 in her MIT office in Cambridge. Newman is Apollo Professor of Astronautics and Engineering Systems and the director of the Technology and Policy Program at MIT. She started her official duties as NASA's new deputy administrator on May 18 at the agency's headquarters in Washington, DC.

"I'm very excited to be at NASA," said Newman. "I'm looking forward to being a part of the agency's work to expand humanity's reach into space, advance our journey to Mars and strengthen America's leadership here at home."

NASA Administrator Charles Bolden, ex-KE4IQB, said he's long admired Newman. "Her talents and skills as an educator and technological innovator will bring a new energy to our NASA leadership team, and I'm ecstatic to have her on board," he said.

Newman had been on the MIT faculty since 1993. Her research has included modeling human performance in low and microgravity conditions, examining the dynamics and control of astronaut motion, and the development of assisted walking devices for the physically handicapped. Possibly her most prominent project has been the development of the BioSuit, a skintight spacesuit that would give astronauts unprecedented comfort and freedom in exploration of planetary surfaces and extra-vehicular activity.

An avid sailor, Newman has circumnavigated the globe.

[ANS thanks the ARRL via Space Bulletin 008 ARLS008 for the above information]

AMSAT News Lit up on the Web, Forums, and Social Media

VP of User Services JaoAnne Maenpaa K9JKM noted "Our e-mail lists relayed the Fox-1 news from Dayton. Those lists have remained quiet while the web and social media were lit up with AMSAT's news from Dayton."

AMSAT-NA Facebook has 1,789 members. AMSAT's Twitter has 6,770 followers.

One of the biggest repeater systems in the Chicago area relays news feeds on their facebook page from the internet:

https://www.facebook.com/suhfars?fref=nf which points to the QRZ.com posts:

http://forums.qrz.com/showthread.php?480200-Fox-1-news-from-Dayton
http://tinyurl.com/ANS144-QRZ-Report

Southgate ARC news:

http://www.southgatearc.org/news/2015/may/fox_1_news_from_dayton.htm
http://www.southgatearc.org/news/2015/may/fox_1_operating_guide.htm

Amateur Radio Newsline Facebook group is referring readers to:
ANS-135 Fox-1 News From Dayton which is a replay of the ANS bulletins

AMSAT-UK and ARRL published the ARRL news item about AMSAT:

http://amsat-uk.org/2015/05/15/fox-1-launch-sept-geo-5-10-ghz/
http://tinyurl.com/ANS144-Hamvention

JoAnne reports two links of video from the AMSAT Forum:

First, the presentation by AMSAT president Barry Baines WD4ASW to open the forum...
http://www.ustream.tv/recorded/62340146

Second, a portion of Tom Clark's K3IO Forum presentation at:
http://www.ustream.tv/recorded/62343338

Hams in Space posted a copy of their Dayton forum slides including mention of AMSAT at:

http://hamsinspace.com/resource/Sat_Radio_7_07_Dayton.pdf

[ANS thanks JoAnne K9JKM for the above information]

PSK31 and APRS CubeSat Status Update

Martin G8JNJ reports receiving the PSAT PSK31 FM downlink on the online SUWS WebSDR located at Farnham near London. At 22:30 GMT on May 21, 2015 Bob Bruninga WB4APR posted the following update on the AMSAT Bulletin Board about the three USNA CubeSats PSAT, BRICSAT and USS Langley along with a guide on how to use the PSK31 transponder.

We now have heard 4 of 5 transmitters from our 3 spacecraft all still in a close cluster:
* PSAT packet is OK but WOD not working (no digipeating for users yet)
* PSAT PSK31 downlink is ok [remember, it is FM!]
* BRICSAT telemetry has been heard but is cycling OFF due to low power
* BRICSAT PSK31 downlink (also FM) has also been heard barely (when ON)
* USS Langley not heard

PSAT CPU shows the 4 day-fail-safe backup reset circuit is not counting down, so we have lost this (1 of 3) fail safe backup RESET capabilities. Bad line of code already found. But cannot change it.

PSAT is not properly reporting WOD data and S#… STATUS packets are being bundled until 255 byte packet length is reached and then it all comes down at once. Noone has captured any of these long packets. Please try with PASSALL ON so that you can receive partial packets.

Awaiting permission from BRNO University to authorize HF user uplinks on PSAT PSK31.

BRICSAT PSK31 transponder is on identical frequencies as PSAT's. You can tell them apart because one has PSK Telemetry on 315 Hz and the other is on 365 Hz. Both on the UHF FM downlink 435.350 MHz

We'd LOVE to hear from USS Langley, and we'd love to capture one of those long WOD packets from PSAT. Our ground station is only getting a few packets compared to some submissions from others. Keep it up.

SUMMARY:

145.825 1.5U cubesat – PSAT 1200 baud AX.25
435.350 same cubesat – PSAT PSK31 FM – Brno University transponder

437.975 1.5U cubesat – BRICsat 9600 baud
435.350 same cubesat – BRICsat PSK31 FM – Brno University transponder

437.975 3.0U cubesat – USS Langley 9600 bd

ULTRASat3
1 99993U 15140.67013889 .00040043 00000-0 10235-2 0 00009
2 99993 055.0004 339.9238 0251027 182.3314 074.3075 15.12517086000014

Receiving the PSAT PSK31 FM downlink

Receiving the PSAT (and BRICsat) 435.350 MHz FM downlink is as simple as placing your PSK31 laptop microphone next to the speaker on your FM satellite UHF receiver and just watching the waterfall.

What you see is exactly what everyone else sees (its FM). There is no Doppler added to the tones due to your station's position relative to the satellite. But you DO have to retune your FM radio at least 3 times during the pass (+5 kHz, 0, -5 kHz) to stay in the FM passband. [Note: UK users should remember to selected the wide FM (5 kHz deviation/25 kHz channel spacing) setting on their rigs]

User uplinks, however, will shift in the waterfall according to each user's position relative to the satellite. The shift can be as low as 1 Hz per second to as high as 6 Hz per second. This is because the uplink is on 10 meters where the Doppler rate is only 1/15th of what it would be on UHF.

The TELEMETRY channel at 315 Hz (PSAT) or 375 Hz (BRICsat) is FIXED

with no Doppler since it is generated onboard into the FM downlink

WHAT TO DO:

1) We will need PSK31 authors to open the PSK31 frequency tracking to accommodate more than 1 Hz per second Doppler tracking. Current implementations can do 1 Hz/s but completely fail at 3 Hz/s. 2 Hz/s might work a little…

2) Until then, ANY uplink user that is in line with a direct overhead pass will have minimum Doppler at the start and end of his pass (1 Hz/sec) when the satellite is going right at him and directly away from him. (Though it will be MAX (6 Hz/sec) when it passes over her/his station).

3) Just turn on MULTI CHANNEL window and let the PSK31 decode everyone.The ones with the least Doppler at any instant may be decoded for a while!

USERS can transmit later when BRNO University says it has completed its tests. Brno provided the transponders for use in the PSAT and BRICsat satellites.

So start preparing your station to TX PSK31 on 10 meters SSB and to receive the audio from an FM UHF rig on 435.350 +/- 5 kHz steps of Doppler.

DOWNLINK Limitations: The UHF downlink signal is only 300 mW and so a UHF beam is needed on the downlink.

UPLINK RESTRICTIONS: *NOTHING MORE THAN* a Vertical 1/4 wave or Dipole is authorized on the 10m uplink and no more than 25 Watts (for now).

Remember a 1/4 wave vertical is the ideal antenna because it maximizes the signal at lower angles and tapers the signal as the satellite gets closer. This keeps user uplinks about the same during a pass. Strong stations just drive down the AGC and ruin it for everyone.

Use minimum power!! Remember, this is crossband FULL DUPLEX so you can see yourself in the downlink just like everyone else can see you. Act accordingly. And of course DO NOT TRANSMIT if you cannot see the waterfall … Duh!

Enjoy!
Bob, WB4APR

Listen to satellite signals in the 145 and 435-438 MHz bands from anywhere in the world using the online SUWS WebSDR located near London. Further details at http://amsat-uk.org/2014/08/15/suws-websdr-moves-to-new-site/

[ANS thanks Bob WB4APR and AMSAT-UK for the above information]

ARISS News

It is unlikely that there will be any contacts with the Columbus module station until after a crew change.
>From 5-11-2015 through 7-26-2015, there will be no US Operational

Segment (USOS) hams on board ISS. So any schools contacts during
this period will be conducted by the ARISS Russia team.

Watch
http://www.ariss.org/upcoming-contacts.html
for information about upcoming contacts as they are scheduled.

[ANS thanks ARISS for the above information]

Satellite Shorts From All Over

+ The AMSAT Office is closed from Friday, May 22nd through
  Monday, May 25th. Martha will be back in the office on Tuesday,
  May 26th.
  [ANS thanks the Martha for the above information]

+ These are the launch provided elements for PPOD 3 deployment that
  included PSAT:

ULTRASat3

1 99993U   15140.67013889 .00040043 00000-0 10235-2 0 00009
2 99993 055.0004 339.9238 0251027 182.3314 074.3075 15.12517086000014

  The PSAT predictions are now available on the AMSAT web site using
  the keps Bob Bruninga provided for ULTRASat3

  [ANS thanks Bob, WB4APR and Joe KM1P for the above information]

+ Tentative satellite pass plan for VP2MKV operation:
  We will attempt to be on the first two FO-29 ascending node passes
  June 11 through 20. If time allows we may be on the third ascending
  node those days. Those passes happen in late morning to mid
  afternoon Montserrat time. On those passes we will look first for
  South America when the satellite is south of us, then North America,
  then Europe during the short mutual window. If there are 2 meter
  or 6 meter terrestrial openings during the VHF contest June 13 and
  14 we will not be on satellite at those times.

  [ANS thanks Jim WD0E for the above information]

+ The annual SA AMSAT Space Symposium will be held on 20 June at the
  Innovation Hub in Pretoria. Book your seat now to take advantage
  of the early bird registration fee. Details and booking form is on
  www.amsatsa.org.za

 [ANS thanks SA AMSAT for the above information]

/EX

AMSAT User Services and the Editors of the AMSAT New Service pass on
our condolences to ANS Weekly Co-Editor Joe Spier K6WAO and his
family on the death of Joe's mother this week.

In addition to regular membership, AMSAT offers membership in the
President's Club. Members of the President's Club, as sustaining
donors to AMSAT Project Funds, will be eligible to receive addi-

tional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
EMike McCardel, KC8YLD
kc8yld at amsat dot org